**Before the**
**Federal Communications Commission**
**Washington, D.C. 20554**



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| In the Matter of | ) | |
| | ) | |
| Implementation of Section 304 of the Telecommunications Act of 1996 | ) | CS Docket No. 97-80 |
| | ) | |
| Commercial Availability of Navigation Devices | ) | |
| | ) | |
| Compatibility Between Cable Systems and Consumer Electronics Equipment | ) | PP Docket No. 00-67 |
| | ) | |
| Oceanic Time Warner Cable, A subsidiary of Time Warner Cable, Inc. | ) | File Nos. EB-07-SE-351, EB-07-SE-352 |
| | ) | |
| Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Kauai Cable System | ) | NAL/Acct. Nos. 200832100074, 200932100001, 200932100002, 200932100003, 200932100008, 200932100022, and 200932100023 |
| Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Oahu Central Cable System | ) | |
| | ) | |
| Cox Communications, Inc. Fairfax County, Virginia Cable System | ) | FRN Nos. 0018049841, 0016034050 |
| | ) | |
| Cable One, Inc.'s Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules | ) | CSR-8080-Z |

## THIRD REPORT AND ORDER AND ORDER ON RECONSIDERATION

**Adopted: October 14, 2010** **Released: October 14, 2010**

By the Commission: Chairman Genachowski and Commissioners Copps, McDowell, Clyburn and Baker issuing separate statements.

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## I. INTRODUCTION

1. In this Third Report and Order ("*Order*"), we remedy shortcomings in our CableCARD rules in order to improve consumers' experience with retail navigation devices (such as set-top boxes and digital cable-ready television sets) and CableCARDs, the security devices used in conjunction with navigation devices to perform the conditional access functions necessary to access cable services. We believe these rule changes are necessary to discharge our responsibility under the Act to assure the development of a retail market for devices that can navigate cable services. We seek to remove the disparity in consumer experience between those who choose to buy a retail device and those who lease the cable provider's set-top box,[1] as the disparity is impeding the development of a retail market for navigation devices. Specifically, we adopt rules today to (1) require cable operators to support the reception of switched digital video services on retail devices to ensure that subscribers are able to access the services for which they pay regardless of whether they lease or purchase their devices; (2) prohibit price discrimination against retail devices to support a competitive marketplace for retail devices; (3) require cable operators to allow self-installation of CableCARDs where device manufacturers offer device-specific installation instructions to make the installation experience for retail devices comparable to the experience for leased devices; (4) require cable operators to provide multi-stream CableCARDs by default to ensure that cable operators are providing their subscribers with current CableCARD technology; and (5) clarify that CableCARD device certification rules are limited to certain technical features to make it easier for device manufacturers to get their products to market. We also modify our rules to encourage home-networking by simplifying our set-top box output requirements. In addition, we adopt a rule to promote the cable industry's transition to all-digital networks by exempting all one-way set-top boxes without recording functionality from the integration ban. Each of the rule changes adopted in this item are intended to meet the goals of Section 629 by further developing a retail market for navigation devices. Finally, we consider nine petitions for reconsideration of prior decisions in CS Docket No. 97-80, PP Docket No. 00-67, and the enforcement proceedings captioned above regarding changes to device certification procedures, the Commission's content encoding and protection rules, and access to switched digital video. Together, the changes we adopt today should benefit consumers who wish to buy navigation devices while at the same time removing unnecessary regulatory obligations on cable operators.

[1] Cable operators' leased navigation devices have historically been set-top boxes that serve a single television set and provide access to both linear channels and additional two-way services, including video-on-demand offerings. Advances in technology and consumer demand for greater functionality and home network features may lead cable operators to develop more advanced leased navigation devices, including home media servers or home gateways, that provide greater functionality and the ability to serve multiple television sets by incorporation of multiple tuners and home networking protocols.

## II. BACKGROUND

2. In the Telecommunications Act of 1996, Congress added Section 629 to the Communications Act.[2] That section directs the Commission to adopt regulations to assure the commercial availability of navigation devices used by consumers to access services from multichannel video programming distributors ("MVPDs"). Section 629 covers "equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems."[3] Congress, in enacting the section, pointed to the vigorous retail market for customer premises equipment used with the public switched-telephone network and sought to create a similarly vigorous market for devices used with MVPD services.[4]

3. In 1998, the Commission adopted the *First Report and Order* to implement Section 629.[5] The order required MVPDs to make available a conditional access element separate from the basic navigation or host device, in order to permit unaffiliated manufacturers and retailers to manufacture and market host devices while allowing MVPDs to retain control over their system security.[6] The technical details of this conditional access element were to be worked out in industry negotiations. In 2003, the Commission adopted, with certain modifications, standards on which the National Cable and Telecommunications Association ("NCTA") and the Consumer Electronics Association ("CEA") had agreed in a Memorandum of Understanding ("MOU").[7] The MOU prescribed the technical standards for one-way (from cable system to customer device) CableCARD compatibility. The CableCARD is a security device provided by an MVPD, which can be installed in a retail navigation device bought by a consumer in the retail market to allow the consumer's television to display MVPD-encrypted video programming. To ensure adequate support by MVPDs for CableCARDs, the Commission prohibited MVPDs from integrating the security function into set-top boxes they lease to consumers, thus forcing MVPDs to rely on CableCARDs as well.[8] This "integration ban" was initially set to go into effect on January 1, 2005,[9] but that date was later extended to July 1, 2007.[10] Although the cable industry has

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[2] *See* Telecommunications Act of 1996, Pub. L. No. 104-104, § 304, 110 Stat. 56, 125-126 (1996); 47 U.S.C. § 549.

[3] 47 U.S.C. § 549(a).

[4] H.R. REP. NO. 104-204, at 112-3 (1995).

[5] *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 13 FCC Rcd 14775 (1998) ("*First Report and Order*").

[6] *Id.* at 14808, ¶ 80; 47 C.F.R. § 76.1204(a)(1).

[7] *See Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, 18 FCC Rcd 20885, at 20926-20944, Appendix B (2003) ("*Plug and Play Order*"). *See also Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, 18 FCC Rcd 518, 531-609, Appendix B (2003).

[8] *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 20 FCC Rcd 6794, 6794, ¶ 2 (2005) ("[C]ommon reliance by cable operators on the same security technology ... that consumer electronics manufacturers must employ in developing competitive navigation devices will help attain the goals of Section 629 of the [Telecommunications] Act.").

[9] *Id.*

[10] In April 2003, the Commission extended the effective date of the integration ban until July 1, 2006. *See Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 18 FCC Rcd 7924, 7926, ¶ 4 (2003). Then, in 2005, the Commission further extended that date until July (continued....)

challenged the lawfulness of the integration ban on three separate occasions, in each of those cases the D.C. Circuit denied those petitions.[11]

4. Unfortunately, the Commission's efforts to date have not developed a vigorous competitive market for retail navigation devices that connect to subscription video services.[12] Most cable subscribers continue to use the traditional set-top boxes leased from their cable operator; only 1 percent of the total navigation devices deployed are purchased at retail.[13] Although following adoption of the CableCARD rules some television manufacturers sold unidirectional digital cable-ready products ("UDCPs"), most manufacturers have abandoned the technology.[14] Indeed, since July 1, 2007, cable operators have deployed more than 22.75 million leased devices pre-equipped with CableCARDs, compared to only 531,000 CableCARDs installed in retail devices connected to their networks.[15] Furthermore, while 605 UDCP models have been certified or verified for use with CableCARDs, only 37 of those certifications have occurred since the integration ban took effect in July 2007.[16] This evidence indicates that many retail device manufacturers abandoned CableCARD before any substantial benefits of the integration ban could be realized.

5. Not only were very few retail devices manufactured and subsequently purchased in the retail market, but an additional complication with the installation process further depressed the retail market. The cable-operator leased devices come pre-equipped with a CableCARD, so that no subscriber

(Continued from previous page)
1, 2007. *See Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 20 FCC Rcd 6794, 6810, ¶ 31 (2005).

[11] *Comcast Corp. v. FCC*, 526 F.3d 763 (D.C. Cir. 2008); *Charter Comm., Inc. v. FCC*, 460 F.3d 31 (D.C. Cir. 2006); *General Instrument Corp. v. FCC*, 213 F.3d 724 (D.C. Cir. 2000). The Commission argued, and the D.C. Circuit agreed, that the integration ban was a reasonable means to meet Section 629's directive. *Charter Comm., Inc. v. FCC*, 460 F.3d 31, 41 (D.C. Cir. 2006) ("this court is bound to defer to the FCC's predictive judgment that, '[a]bsent common reliance on an identical security function, we do not foresee the market developing in a manner consistent with our statutory obligation.'").

[12] FEDERAL COMMUNICATIONS COMMISSION, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN 50-51 (rel. March 16, 2010); Rob Pegoraro, *As Cable TV Goes Digital, It's Still Stuck Inside the Box*, THE WASHINGTON POST, Oct. 4, 2009, at G1; *F.C.C. May Pry Open the Cable Set-Top Box*, THE NEW YORK TIMES, Dec. 4, 2009, *available at* http://bits.blogs.nytimes.com/2009/12/04/watch-out-comcast-the-fcc-may-not-let-you-favor-nbc/.

[13] *See* FEDERAL COMMUNICATIONS COMMISSION, BROADBAND GAPS 18 (November 18, 2009), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-294708A1.pdf.

[14] Rob Pegoraro, *As Cable TV Goes Digital, It's Still Stuck Inside the Box*, THE WASHINGTON POST, Oct. 4, 2009, at G1. Some manufacturers are offering tru2way television sets with CableCARD slots in test markets. David Chartier, *Panasonic ships first tru2way HDTVs to Chicago, Denver*, ARS TECHNICA, October 16, 2008, *available at* http://arstechnica.com/old/content/2008/10/panasonic-ships-first-tru2way-hdtvs-to-chicago-denver.ars. *See infra* ¶ 6 for a discussion of tru2way.

[15] Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80, at 1 (Sept. 30, 2010).

[16] *Compare* Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80, at 1 (December 22, 2009) *with* Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80, at 1 (June 25, 2007).

premises installation of the card is required.[17] But this is not the case with devices purchased at retail. CableCARDs for use in retail devices must be installed in the home, and many cable operators require professional installation by the cable operator. Unfortunately, the record reflects poor performance with regard to subscriber premise installations of CableCARDs in retail devices.[18] This could be a consequence of the fact that only 1 percent of the total navigation devices deployed are purchased at retail and require an actual CableCARD installation,[19] which may have made it difficult to train the cable installers properly. It could also reflect either indifference or reluctance by cable operators to support navigation devices purchased at retail in competition with their own set-top boxes. Regardless of the cause, these serious installation problems further undermine the development of a retail market.

6. A consumer using a unidirectional device cannot take advantage of two-way services offered by a cable operator. The Commission anticipated that the parties to the MOU would negotiate another agreement to achieve bidirectional compatibility, using either a software-based or hardware-based solution.[20] Unlike one-way devices, which can only receive communication from cable headends, bidirectional devices can send requests to the cable headend, which enables those devices to receive services like cable operator-provided interactive programming guides, cable-operator provided video-on-demand and pay-per-view, and other interactive programming services. When the Commission realized in June 2007 that negotiations were not leading to an agreement for bidirectional compatibility between consumer electronics devices and cable systems, it released a Third Further Notice of Proposed Rulemaking, seeking comment on competing proposals for bidirectional compatibility and other related issues.[21] In the wake of the *Two-way FNPRM*, the six largest cable operators and numerous consumer electronics manufacturers negotiated an agreement for bidirectional compatibility that continues to rely and builds on CableCARDs by using a middleware-based solution called "tru2way."[22]

7. The National Broadband Plan, released in March of this year, recommended changes in the CableCARD rules to provide benefits to consumers who use retail CableCARD devices without

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[17] *See, e.g.*, MOTOROLA DCX700 SPEC SHEET, *available at* http://www.motorola.com/staticfiles/Business/Products/TV%20Video%20Distribution/Customer%20Premises%20Equipment/All%20Digital%20QAM%20Set-tops/DCX700/_Document/static_files/DCX700%20spec%20sheet.pdf?localeId=33 (featuring a "Pre-installed M-Card"); SCIENTIFIC ATLANTA, IMPLEMENTING SEPARABLE SECURITY in a DBDS at 13, *available at* http://www.scientificatlanta.com/products/customers/images_training/752705-c%20implementing%20separable%20security%20in%20a%20dbds.pdf (explaining that set-top boxes with factory-installed CableCARDs are called "Separable Security Combination" boxes).

[18] *See, e.g.*, Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80, at 3-13 (June 23, 2010).

[19] *See* FEDERAL COMMUNICATIONS COMMISSION, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN 51 (rel. March 16, 2010).

[20] *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 18 FCC Rcd 7924, 7925-6, ¶ 4-5 (2003); *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 20 FCC Rcd 6794, 6811-2, ¶ 34 (2005).

[21] *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 22 FCC Rcd 12024 (2007) ("*Two-way FNPRM*").

[22] *See* Letter from Joel Wiginton, Vice President and Senior Counsel, Sony Electronics Inc., and Kathryn A. Zachem, Vice President, Regulatory Affairs, Comcast Corporation to Monica Desai, Chief, Media Bureau, Federal Communications Commission at Attachment at 1 (June 10, 2008).

imposing unfair regulatory burdens on the cable industry.[23] The plan suggested that these changes could serve as an interim solution that will benefit consumers while the Commission considers broader changes to develop a retail market for navigation devices. After considering those recommendations, on April 21, 2010 the Commission adopted a *Fourth Further Notice of Proposed Rulemaking* ("*FNPRM*")[24] seeking comment on proposed measures to remedy shortcomings in the existing CableCARD system. The Commission proposed five measures intended to remove the disparity between the treatment of consumers who choose to use a retail CableCARD-equipped video device and those who lease a cable provider's video navigation box. In the *FNPRM*, we sought comment on proposals to (1) ensure that retail devices have comparable access to video programming that is prescheduled by the programming provider; (2) make CableCARD pricing and billing more transparent; (3) streamline CableCARD installations; (4) require cable operators to offer multi-stream CableCARDs; and (5) clarify certification requirements. In the *FNPRM*, we also proposed a rule change that would allow cable operators to substitute certain interfaces in lieu of the IEEE-1394 interface currently required on all high-definition set-top boxes, and proposed to define a baseline of functionality that such interfaces must meet. Finally, in order to encourage the cable industry's transition to digital technology, the Commission proposed an exemption to the integration ban for all one-way devices that do not have digital video recording capabilities.

## III. DISCUSSION

### A. Reforming the CableCARD System

8. Based on the record before us, we conclude that modifications to our rules are necessary to improve the CableCARD regime and advance the retail market for cable navigation devices. We are sympathetic to concerns that we are adopting these rules while we consider a successor regime,[25] but we must keep in mind that CableCARD is a realized technology – consumer electronics manufacturers can build to and are building to the standard today. Until a successor technology is actually available, the Commission must strive to make the existing CableCARD standard work by adopting inexpensive, easily implemented changes that will significantly improve the user experience for retail CableCARD devices. Therefore, in this order we adopt rule changes that will (1) require cable operators to provide retail devices with access to switched-digital channels; (2) require cable operators to provide greater transparency in their CableCARD charges; (3) require cable operators to allow subscribers to self-install CableCARDs and require cable operators to inform their subscribers about this option; (4) require cable operators to provide multi-stream CableCARDs by default, unless a subscriber explicitly requests a single-stream CableCARD; and (5) clarify the testing requirements for CableCARD devices. Based on our examination of the record in this proceeding, we believe that these changes will be inexpensive to implement and will eliminate or reduce the disparity in the consumer experience between leased devices and retail devices, which has dampened enthusiasm for retail devices.

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[23] *See* FEDERAL COMMUNICATIONS COMMISSION, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN 52 (rel. March 16, 2010).

[24] *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices and Compatibility between Cable Systems and Consumer Electronics Equipment*, 25 FCC Rcd 4303 (2010) ("*FNPRM*").

[25] *See Video Device Competition; Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility between Cable Systems and Consumer Electronics Equipment*, 25 FCC Rcd 4275 (2010) ("*NOI*"). In the *NOI*, the Commission sought comment on a concept that is intended to develop a competitively neutral solution to navigation device compatibility.

### 1. Switched Digital Video

9. Switched Digital Video ("SDV") is a method of delivering linear programming[26] that requires a set-top box to request specific channels from the cable head-end.[27] SDV allows cable providers to offer their services more efficiently, as channels occupy capacity on the system only if subscribers are viewing or recording them. Unfortunately, this can affect one-way retail CableCARD devices adversely because one-way devices are not capable of requesting the switched channels, and therefore subscribers with retail devices are unable to access programming provided using SDV. Certain cable operators that have deployed SDV offer their subscribers free "tuning adapters," which are repurposed set-top boxes that allow TiVo and Moxi retail set-top boxes and certain home-theater PCs to access switched digital content. These cable operators have provided the tuning adapters voluntarily, as the Commission's rules have not required cable operators to provide access to switched digital channels for one-way retail devices.[28]

10. In the *FNPRM*, the Commission sought comment on whether this voluntary solution provides adequate support for retail navigation devices.[29] The Commission also sought comment on TiVo's proposal to use an IP backchannel to request switched digital channels.[30] There was vigorous disagreement between commenters on this issue – certain commenters strongly supported maintaining the *status quo*, while others zealously advocated a rule that would require cable operators who use SDV to support retail devices through the use of an IP backchannel.

11. Commenters who support maintaining the voluntary, market-based tuning adapter solution argue that SDV benefits consumers and that any changes to the *status quo* could stifle deployment of SDV and its associated benefits.[31] They assert that the tuning adapter solution works adequately, and that there is no evidence that an IP backchannel would work better than the tuning adapter solution.[32] They also argue that it does not make sense to require the industry to develop and deploy an IP backchannel solution, which could be costly and discourage deployment of SDV,

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[26] The term "linear programming" is generally understood to refer to video programming that is prescheduled by the programming provider. *Cf.* 47 U.S.C. § 522(12) (defining "interactive on-demand services" to exclude "services providing video programming prescheduled by the programming provider").

[27] *See FNPRM*, 25 FCC Rcd at 4308-9, ¶ 14.

[28] *Oceanic Time Warner Cable, Cox Communications, et al.*, 24 FCC Rcd 8716, 8720-3, ¶¶ 9-15 (2009).

[29] *Id.*

[30] Under TiVo's "IP-backchannel" proposal, a UDCP would be able to communicate with a cable headend using an IP connection to request a switched digital channel rather than via a USB connection to a tuning adapter directly connected to the retail device. *See* Letter from Matthew Zinn, Senior Vice President, General Counsel, Secretary & Chief Privacy Officer, TiVo, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission at 3 (Feb. 17, 2010) (citing Jeff Baumgartner, *RCN Makes TiVo Its Dominant DVR*, LIGHT READING (Aug. 4, 2009), *available at* http://www.lightreading.com/document.asp?doc id=180071&site=cdn). The operator would be required to publish an application programming interface, or API, enabling the retail manufacturer to develop firmware that would allow its devices to request and keep alive individual SDV channels. If the retail device customer is not a subscriber to its cable operator's high speed internet service, these IP requests would necessarily travel over the public Internet, triggering some of the cable operator's concerns regarding security.

[31] BendBroadband Reply at 4-6; BBT Comments at 15-16; Cisco Comments at 2; Cisco Reply at 2-4; Cox Comments at 6-11; Motorola Comments at 17-20; NCTA Comments at 36-47; NCTA Reply at 24-27; Time Warner Comments at 6-10; JSI Comments at 2-3; TIA Comments at 4; Verizon Comments at 2-5; Verizon Reply at 5.

[32] *Id.*

particularly with the successor AllVid requirements on the horizon and the current availability of the cable industry's tru2way solution.[33] They argue the additional development time and resources necessary to implement an IP backchannel would be better allocated to AllVid development.[34] Certain commenters also assert that implementing a signaling backchannel over the public Internet would raise security and privacy concerns, including potential denial-of-service attacks, attacks that could provide unauthorized access to proprietary networks, and attacks that could result in theft of service and/or subscriber data.[35] Therefore, these commenters argue, the tuning adapter solution that has developed in the marketplace is the most pragmatic, effective way to ensure that retail devices can access switched channels, and the Commission does not need to adopt rules.

12. While several commenters assert that the tuning adapter solution works adequately,[36] others argue that consumers will not purchase retail CableCARD devices unless they are certain that they will be able to access all of the programming to which they subscribe.[37] Because the Commission's rules do not require operators to provide access by retail CableCARD devices to switched digital video channels, TiVo is concerned that cable operators could withdraw their current willingness to provide tuning adapters at no additional charge to the customer.[38] Furthermore, a number of cable subscribers indicate that they have trouble obtaining tuning adapters that work.[39] These commenters argue that the most effective way to provide retail CableCARD devices with access to switched-digital channels is

[33] Comcast Comments at 20; Comcast Reply at 20-22; Panasonic Comments at 5; Cisco comments at 6; Cisco Reply at 2-3.

[34] NCTA Reply at 27; Letter from Matthew Brill, Counsel to Time Warner Cable, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission at 6 (September 13, 2010).

[35] *See, e.g.*, Cisco Comments at 5, 15.

[36] Comcast Comments at 17. *See also* BendBroadband Reply at 4-6; BBT Comments at 15-16; Cisco Comments at 2; Cisco Reply at 2-4; Cox Comments at 6-11; Motorola Comments at 17-20; NCTA Comments at 36-47; NCTA Reply at 24-27; Time Warner Comments at 6-10; JSI Comments at 2-3; TIA Comments at 4; Verizon Comments at 2-5; Verizon Reply at 5.

[37] *See, e.g.,* TiVo Comments at 9-11.

[38] TiVo Comments at 8-10; TiVo Reply at 5-12.

[39] Craig Block Reply at 1; CEA Comments at 15-17; CEA Reply at 6-9; Daniel L. Flannery Comments at 1 ("My [tuning adapter] frequently fails to tune SDV channels and has had many complete outages that require calling TWC customer service, resulting in many hours of my time being wasted . . . Most of their customer service people barely know that [tuning adapters] exist, let alone any detailed information about them").; Brian McMullan Reply at 1 ("In nearly three months of use, I can still not receive the channels I pay for").; Wes Mills Reply at 1 ("As is the case with much of the CableCARD world, providers' representatives and installers are not well trained on the devices and not equipped to troubleshoot issues arising from the use of the devices."); Sayantan Nandi Reply at 1 ("The current Tuning Adaptors are power hungry, bulky, slow, and tend to fail. Setup is complicated, and there are many reports of consumers being denied channels they deserve due to poor provisioning by cable companies. I've had 2 of 5 TAs I have been issued fail in the last 18 months or so."); Public Knowledge Comments at 18-20; Scott Ratliff Reply at 1 ("The adapters have not been reliable and have required periodic restarts and support calls to have the adapter re-authorize . . . Problems with them can often lead to missed recording on my DVR"); TiVo Reply at 4-7; John Whittle Comments at 1 ("Over the last three days, the SDV system in the area of Los Angeles, West Valley, has failed on Saturday Evening, Sunday Evening and Monday Evening. The Tuning Adapter makes its call to the headend but no channel frequency is returned and the SDV 1 error is returned.").

through the use of an IP backchannel.[40] They assert that the IP-backchannel solution would solve problems that consumers experience with tuning adapters because it would not require additional, potentially unreliable, customer-premises hardware.[41] Furthermore, they argue, the tuning adapter takes up space, is not energy efficient, and limits the ability to use all of the tuners on multi-tuner devices, thereby limiting the ability of multi-tuner devices to record more than two channels at once.[42] TiVo also expresses concern that cable operators are misinforming subscribers that certain channels are not available on retail devices.[43] Finally, TiVo and CEA assert that the IP backchannel solution would be less expensive than tuning adapters in the long run.[44]

13. We conclude that we should mandate SDV support for retail devices without specifying the technology that cable operators must use to ensure such compatibility. SDV is an innovative technology with a number of benefits, and we do not wish to discourage its deployment. The record is replete, however, with comments from consumers who have had negative experiences using tuning adapters to access switched digital channels on their retail CableCARD devices.[45] Both of the proposed solutions have significant benefits and drawbacks, and the Commission believes that with appropriate direction, cable operators will find the most efficient means of effectively supporting SDV. For example, the Commission recognizes that the economics of deploying an IP backchannel solution are different between those operators who have already or will soon deploy SDV, and those operators who will deploy the next generation of SDV hardware. The Commission does not wish to foreclose the possibility of an IP backchannel for those operators to whom it will add *de minimis* costs as the result of being included in future headend equipment. Conversely, for those operators who currently use SDV and have significant deployments of tuning adapters, the cost to retrofit TiVo's IP backchannel proposal may be prohibitive.[46]

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[40] Craig Block Reply at 1; CEA Comments at 15-17; CEA Reply at 6-9; Daniel L. Flannery Comments at 1; Brian McMullan Reply at 1; Wes Mills Reply at 1; Sayantan Nandi Reply at 1; Public Knowledge Comments at 18-20; Scott Ratliff Reply at 1; TiVo Reply at 4-7; John Whittle Comments at 1.

[41] *Id.*

[42] CEA Comments at 5; CEA Reply at 6-9; Sayantan Nandi Reply at 1; Public Knowledge Comments at 18-20, Scott Ratliff Reply at 1; TiVo Comments at 9-10; Bryan Moor Comments at 1.

[43] TiVo Comments at 9-10.

[44] CEA Reply at 7-9; TiVo Comments at 12-16; TiVo Reply at 7-12.

[45] *See, e.g.*, John Whittle Reply at 1; Craig Block Reply at 1; Brian McMullan Reply at 1; Wes Mills Reply at 1; Sayantan Nandi Reply at 1; Scott Ratliffe Reply at 1; Jonathan Trudel Reply at 1; David Flannery Reply at 1. We did not receive any comments from consumers who approved of tuning adapters, although Cox Communications, Inc. and Cox Enterprises, Inc. did make an ex parte presentation in which they listed positive customer testimonials regarding tuning adapter installation. Letter from Natalie G. Roisman, Counsel to Cox Communications, Inc. and Cox Enterprises, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission at Attachment (July 28, 2010).

[46] Letter from Matthew Brill, Counsel to Time Warner Cable, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission at 5 (September 13, 2010) ("if the communications between the UDCP and TWC's video network proved unreliable, TWC could be forced to install proxy servers closer to the edge of its network, such as at various hubs—of which TWC has over a thousand."). TiVo estimates that each proxy server could cost between $10,000 and $25,000 dollars. TiVo Comments at 15. As NCTA highlights in its comments, tuning adapters are compatible with certain CableCARD-equipped computers as well:

> Tuning Adapters are being used successfully today by customers not only with TiVo and Moxi DVRs but also with certain compatible personal computers. For example, AMD has released the ATI TV Wonder Digital Cable Tuner that, with an operator-supplied Tuning Adapter, enables consumers to access SDV cable programming on a personal computer with Windows Media

(continued....)

Further, the Commission does not presume that these are the only two means of supporting SDV, and expect that some operators may choose other options, such as in-home IP signaling, that provide additional benefits to consumers.[47] We do not foreclose any of these options so long as appropriate documentation is available to enable UDCPs to access SDV channels.

14. Subscribers must be able to use the devices they purchase at retail to access all of the linear channels that comprise the cable package they purchase. Providing retail navigation devices and leased navigation devices with equivalent access to linear programming at an equivalent service price is essential to a retail market for navigation devices.[48] We also want to avoid making deployment of SDV unnecessarily costly. While use of IP-backchannel would not require consumers to purchase additional equipment, we recognize that mandating this approach could be costly for some cable operators. Moreover, we note that operators currently provide tuning adapters at no charge to consumers.[49] Accordingly, pursuant to our authority under Section 629 of the Communications Act, we require cable operators to ensure that cable subscribers who use retail CableCARD navigation devices have satisfactory access to all linear channels, but we will not mandate a specific method by which cable operators must provide such access.[50] We believe that this rule change will address the security concerns raised about the IP-backchannel proposal, as our rule will not require a cable operator to adopt an approach that it believes is insecure. To address the problems with tuning adapters identified by commenters, the satisfactory access standard will require cable operators to ensure that retail devices are able to tune at least as many switched digital channels as that operator's most sophisticated operator-supplied set-top box or four simultaneous channels, whichever is greater.[51] Further, the satisfactory access standard will require the ability to tune and maintain the desired channel as long as it is being watched or recorded, and to do so reliably. Furthermore, we prohibit cable operators from presenting their customers with misleading information regarding retail devices' ability to tune switched digital channels.[52] We adopt these requirements pursuant to Section 629 because we conclude that SDV support for retail devices is

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> Center. A leading expert on Windows Media Center reported last fall that Charter installed and activated a Tuning Adapter with his PC in about five minutes and that the experience was "totally easy."

NCTA Comments at 41; *see also* Cox Comments at 14. Furthermore, Ceton Corporation, a manufacturer of a CableCARD-compatible navigation device, indicates that its product "Supports Switched Digital Video." *See* Ceton Corporation, *Multi-Stream Tuner Cards by Ceton*, http://www.cetoncorp.com/products.php.

[47] We note that in the *NOI*, the Commission is specifically exploring solutions which would rely on in-home IP signaling to provide access to cable operator services. Many of the benefits of that approach, such as the ability to support multiple UDCPs from a single in-home device, the ability to locate the in-home device anywhere in the home, and the ability of the device to communicate via a simple, protocol-based standard, would be available if a cable operator were to use in-home IP-signaling for SDV support on retail devices.

[48] *See* TiVo Comments at 8, n.16.

[49] We note that cable operators have offered tuning adapters to their subscribers free of charge and have not generally imposed incremental costs, such as mandatory professional install fees, on switched digital support. *See, e.g.*, Comcast Comments at 19; Time Warner Cable Comments at 7-8; Cox Comments at 3.

[50] *See* Appendix B at 46 (adopting new Section 76.1205(b)(4)).

[51] Cable operators have nine months to make necessary hardware or software upgrades in order to provide satisfactory access to switched digital channels.

[52] *See* TiVo Comments at 10-11, Exhibit E (indicating that certain operators list channels as "Not Available on CableCARDs," without noting that tuning adapters allow for access to SDV channels). *See also* Appendix B at 47 (adopting new Section 76.1205(c)).

necessary to assure a retail market for navigation devices. We will continue to monitor the development of SDV and the access afforded to cable customers who use, or wish to use, retail navigation devices. If we find that customers who want to use retail set-top boxes do not have satisfactory and equivalent access to all of the linear channels that comprise the cable package to which they subscribe, we will revisit our decision here.

### 2. CableCARD Pricing and Billing

15. In the *FNPRM*, the Commission sought comment on a proposal to require cable operators to list the fee for their CableCARDs as a line item on subscribers' bills separate from their host devices. The Commission proposed this rule change as a means to inform customers about retail navigation device options and to enable them to compare the price of a retail device to the price for leasing a set-top box from their cable operator. The proposed rule also was intended to ensure that the price that subscribers pay for CableCARDs in retail devices is the same as the price that subscribers pay for CableCARDs that are affixed to leased devices. Proponents of the Commission's proposed rule suggest that separate billing will facilitate fair choice and promote competition, as a viable retail market depends on transparency,[53] while opponents argue that such billing would be difficult and expensive to implement, with no benefit to subscribers.[54] Proponents of the rule assert that Section 629 requires separate billing and prohibits cross-subsidization.[55] Opponents of the rule point to Section 629(f), which states that "Nothing in this section shall be construed as expanding" the Commission's authority under the Communications Act. Those commenters assert that the proposed rule would be an expansion of the Commission's authority under the statutory rate provision, Section 623, which allows cable operators to aggregate their equipment costs and charge a standard average rate across their footprints.[56]

16. Public Knowledge argues that the proposed rule does not go far enough.[57] Public Knowledge suggests that in addition to requiring cable operators to separate the monthly fee for a CableCARD from the set-top box on a subscriber's bill, the Commission should also require cable operators to provide each subscriber with the aggregate amount the subscriber has spent on set-top box lease fees.[58] Additionally, Public Knowledge argues that cable operators should be required to notify subscribers about the retail options that are available to them.[59] In a similar vein, Montgomery County, Maryland suggests that the Commission allow state legislatures to adopt legislation that would require cable operators to sell the devices that they lease to ensure that consumers have more options to purchase navigation devices.[60]

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[53] CEA Comments at 10-11; CEA Reply at 4-6, 20-23; Nagravision Comments at 2; TiVo Comments at 16-18; TiVo Reply at 22-23.

[54] Verizon Comments at 2, 5-7; JSI Comments at 4; Time Warner Cable Comments at 13-15; NCTA Comments at 15-19; NCTA Reply at 9-11; Comcast Comments at 24-26; Comcast Reply at 17-19; Charter Comments at 1-3.

[55] Public Knowledge Comments at 10-12.

[56] NCTA Comments at 18-19; Comcast Comments at 25-26; Comcast Reply at 17-19. Furthermore, Verizon asserts that Section 623 does not apply to competitive cable providers, and that therefore any attempt to regulate the cost of equipment is inapplicable to Verizon. Verizon Comments at 6-7.

[57] Public Knowledge Comments at 10-12.

[58] *Id.*

[59] *Id.*

[60] Montgomery County Reply at 3-4.

17. Opponents of the Commission's proposed billing rule assert that a separate billing requirement would only serve to confuse consumers and lead them to believe that their cable operators have added an extra fee to their bills.[61] They also assert that this rule would arbitrarily burden subscribers who lease separated security devices as opposed to those who do not because currently all subscribers pay the same lease fee for a set-top box regardless of whether it has separated security.[62] They argue that implementation of the billing rule would be costly for cable operators, as their billing systems are not designed to separate the cost of a CableCARD from the cost of the set-top box.[63] NCTA and Arris assert that the availability of this information will not affect the retail market because the cost of CableCARDs has no effect on the retail market for set-top boxes.[64]

18. Despite their opposition to the proposed rule as written, NCTA and others are not opposed to the purposes behind the rule, which are to treat retail and leased devices equivalently and encourage pricing transparency.[65] As a compromise, NCTA has proposed that cable operators notify subscribers of the cost of CableCARDs on the operators' websites and yearly rate card notices.[66] NCTA asserts that its proposal would serve the same purpose as the Commission's proposed rule without imposing expensive and confusing billing burdens on cable operators.

19. We conclude that NCTA's compromise solution will inform consumers about CableCARD costs and retail options adequately without imposing unnecessary burdens on cable operators. Therefore, we adopt a requirement that cable operators prominently list the fee for their CableCARDs as a line item on their websites (readily accessible to all members of the public) and annual rate cards separate from their host devices, and provide such information orally or in writing at a subscriber's request. These CableCARD lease fees must be uniform across a cable system regardless of whether the CableCARD is used in a leased set-top box or a navigation device purchased at retail.[67] We are not convinced that NCTA's solution will ensure that cable operators are not subsidizing the costs of leased set-top boxes with service fees. Accordingly, we also adopt a rule that requires cable operators to reduce the price of packages that include set-top box rentals by the cost of a set-top box rental for customers who use retail devices, and prohibits cable operators from assessing service fees on consumer-owned devices that are not imposed on leased devices. These price reductions must reflect the portion of the package price that is reasonably allocable to the device lease fee. In the event that an interested party (including a consumer, local franchise authority, or device manufacturer) alleges a violation of this "reasonably allocable" standard, the Commission will consider in its evaluation whether the allocation is consistent with one or more of the following factors: (i) an allocation determination approved by a local, state, or federal government entity; (ii) the monthly lease fee as stated on the cable system rate card for the navigation device when offered by the cable operator separately from a bundled offer; and (iii) the actual cost of the navigation device amortized over a period of no more than 60 months.[68] These rule

[61] Charter Comments at 3; JSI Comments at 4; Comcast Comments at 26; Comcast Reply at 18-19; NCTA Comments at 16-18; Time Warner Cable Comments at 13-15.

[62] *Id.*

[63] JSI Comments at 4-5; NCTA Comments at 18-19.

[64] NCTA Reply at 9-11; Arris Comments at 4.

[65] *See, e.g.*, Charter Comments at 1-2; Comcast Comments at 26; NCTA Reply at 9; TiVo Reply at 22-23.

[66] NCTA Comments at 18-19; JSI Comments at 4-5.

[67] *See* Appendix B at 46 (adopting new Section 76.1205(b)(5); amending Section 76.1602(b)).

[68] *Id. See* Letter from Julie Kearney, Vice President, Regulatory Affairs, Consumer Electronics Association, to Marlene H. Dortch, Secretary, Federal Communications Commission (July 20, 2010) (suggesting that a 60 month (continued....)

changes are well within our statutory authority under Section 629.[69] Section 629 gives the Commission broad power to adopt regulations to assure the commercial availability of navigation devices and states that multichannel video programming distributors may lease their own devices, as long as "the system operator's charges to consumers for such devices and equipment are separately stated and not subsidized by charges" for multichannel video programming service.[70] These minor rule changes will serve to ensure that cable operators are not subsidizing the costs of their set-top boxes via service charges and will serve to allow consumers to compare the costs involved in choosing between purchasing or leasing a navigation device. This prohibition on subsidies and increased transparency is vital to the continued development of a retail navigation device market, as it will allow subscribers to make informed economic decisions about whether they should purchase a navigation device at retail.

### 3. CableCARD Installations

20. In the *FNPRM*, the Commission expressed concern that CableCARD installation costs and policies may differ unjustifiably between retail devices and leased boxes. To address this situation, the Commission proposed requiring cable operators to allow subscribers to install CableCARDs in retail devices themselves if the cable operator allows its subscribers to self-install leased set-top boxes. Furthermore, the Commission proposed a rule with regard to professional installations that would require technicians to arrive with at least the number of CableCARDs requested by the customer.

21. Commenters who support adopting the proposed installation rule argue that individual users are more than capable of installing their own CableCARDs.[71] According to these commenters, the installation consists of inserting a CableCARD and calling in to the cable operator to report a series of numbers that appear on an activation screen, which subscribers could easily do with basic instruction.[72] Unfortunately, despite the apparent simplicity of installation, these individual subscribers comment that not all cable technicians are properly trained to install CableCARDs and they do not always arrive with functional CableCARDs; therefore it often takes several days and multiple installation appointments to get functional CableCARDs installed.[73] According to TiVo, "the premise of 'plug and play' was that a subscriber should be able to buy a device from a retailer, plug it into her cable connection, and have it work without the cable operator's intervention;" therefore, TiVo argues, until individual subscribers have

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amortization would be a reasonable allocation for determining the value of equipment in bundles); Letter from Jonathan Friedman, Counsel, Comcast Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission at 1-2 (suggesting that allocation methods that have been approved by state taxing authorities would be reasonable).

[69] We reject Verizon's argument that Section 623 restricts the Commission's authority to impose pricing and billing rules in the context of this proceeding. 47 U.S.C. § 543. In adopting these rules, we are not relying on our authority under Section 623 but rather on our independent authority under Section 629. In addition, we take no position on Montgomery County, Maryland's suggestion that we allow states to adopt legislation to ensure that consumers have options to purchase the navigation devices that they lease from cable operators. *See* Montgomery County Reply at 3-4; 47 U.S.C. § 549(f).

[70] 47 U.S.C. § 549(a).

[71] Amaral Comments at 1; Chauncey Reply at 1; King Reply at 1; Ratliff Reply at 1.

[72] Mills Reply at 1; Public Knowledge Comments at 13; TiVo Comments at 6.

[73] Chauncey Reply at 1; Mills Reply at 1; Ratliff reply at 1.

the option to self-install their own CableCARDs, subscribers will not be able to purchase devices that are truly "plug and play."[74]

22. NCTA and CEA advocate a modification to the proposed rule that would require cable operators to allow self-installation of CableCARDs on any device for which the manufacturer provides detailed, step-by-step installation instructions.[75] Several major cable operators, including Charter and Comcast, support the self-installation option so long as adequate installation instructions are provided by the manufacturer.[76] Likewise, manufacturers such as Panasonic support the provision of web-based installation walkthroughs as one means of fulfilling the goal of making step-by-step instructions available to consumers seeking to self-install CableCARDs.[77] The few cable operator proponents do, however, request a four- to six-month phase-in period before this rule takes effect, during which time they will develop and implement necessary internal procedures and training that reflect the new policy.[78]

23. Commenters including CEA/CERC and Panasonic suggest that cable operators should be required to permit retail outlets to sell CableCARDs and to assist in the installation at the point of sale.[79] Commenters from the cable industry were not necessarily opposed to this option, but they did note that allowing retail stores to install CableCARDs at the point of sale would introduce certain business, technical, and operational hurdles, such as identifying the encryption technology that a cable operator uses in the specific subscriber's geographic location.[80] Therefore, they suggest that the Commission encourage industry negotiations to explore this option, but they oppose adoption of a rule that mandates retail installation.[81] TiVo, however, supports this proposal as one of the few means of fulfilling the true purpose of the CableCARD requirement, which is to encourage a competitive market for retail devices that can be purchased, taken home, and installed without the cable operator's intervention.[82]

24. In addition to its other proposals, CEA seeks better enforcement of the CableCARD rules, including the new proposed installation rule.[83] CEA suggests that empowering local franchising authorities to enforce the CableCARD rules would encourage cable operators to comply with the rules.[84]

25. Time Warner Cable and Verizon assert that cable operators are best equipped to determine whether customers should be allowed to install their own CableCARDs.[85] They argue that the CableCARD installation process is not straightforward, that consumers may not be equipped to install

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[74] Tivo Reply at 19.

[75] NCTA Comments at 20, Reply at 14; CEA Comments at 4-5, 7.

[76] CEA Reply at 3; Charter Comments at 4-5; Comcast Comments at 21-23; Cox Comments at 15-16; NCTA Comments at 20-21.

[77] Panasonic at 6.

[78] Charter Comments at 4-5; Comcast Reply at 15-16.

[79] CEA Comments at 6-8; Panasonic Comments at 6.

[80] Comcast Reply at 3, 15-17; NCTA Reply at 14-15.

[81] *See, e.g.*, Comcast Reply at 3, 16-17.

[82] TiVo Reply at 19.

[83] CEA Comments at 8.

[84] *Id.*

[85] Time Warner Cable Comments at 11-12; Verizon Comments at 9-10; Verizon Reply at 6.

such equipment, and that the installations are not overly expensive. Verizon further argues that customers have shown no real demand to perform self-installation.[86] Similarly, Cox submits that the low number of interested consumers does not justify development of costly support mechanisms for those who wish to self-install, unless the customer support burden shifts entirely to retail device manufacturers.[87] Verizon also expresses skepticism that the Commission has authority to adopt such a rule.[88]

26. We conclude that the best means of assuring the development of a retail market for navigation devices is to require cable operators to allow subscribers to self-install CableCARDs. We believe cable operators should have time to train staff and develop more robust customer support infrastructures and procedures, and provide nine months to comply for any operators that allow subscribers on any of their systems to self-install any cable modems[89] or leased set-top boxes.[90] We are not persuaded by arguments that cable operators could not support activation of retail CableCARD devices within this reasonable transition period. However, we are concerned that a cable operator that does not permit self-installation of any equipment that attaches to its network may not have the customer support infrastructures in place to handle self-installations and may need a longer transition period.[91] Therefore, we will allow cable operators that do not have any self-installation support in place twelve months to phase in this self-installation requirement.[92] We also require cable operators to inform their subscribers about the self-installation option when they request CableCARDs.[93]

27. With respect to professional installations, we adopt our proposed rule requiring technicians to arrive with at least the number of CableCARDs requested by the customer.[94] We require cable operators to make good faith efforts to ensure that all CableCARDs delivered to customers or brought to professional installation appointments are in good working condition and compatible with their customers' devices, and to allow subscribers to request CableCARDs using the same methods that subscribers can use to request leased set-top boxes.[95] These rules are intended to solve the complaints in

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[86] Verizon Comments at 10.

[87] Cox Comments at 15-16.

[88] Verizon Comments at 10.

[89] Cable modem installations involve steps that are substantially similar to CableCARD installation steps. *See, e.g.*, Cisco, Modems/Gateways FAQs - Support, *I bought a Cisco/Scientific Atlanta cable modem, connected all the cables myself, now how do I access the Internet?*, http://www.cisco.com/web/consumer/support/prod_faq_modems.html.

[90] NCTA Reports that nine out the ten largest incumbent cable operators allow self-installation of some set-top boxes, and the tenth cable operator plans to do so beginning in 2010. *See* Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Eloise Gore, Acting Legal Advisor, Office of Commissioner Mignon Clyburn, Federal Communications Commission at 1 (Oct. 6, 2010).

[91] *Cf.* Cox Comments at 15-16; Charter Comments at 4-5 (claiming that it could be costly to support CableCARD self-installation).

[92] *See* Appendix B at 46 (adopting new Section 76.1205(b)(1)).

[93] *See id.*

[94] *See* Appendix B at 46 (adopting new Section 76.1205(b)(3)).

[95] *See id.* These requirements pertaining to professional installations remain relevant now and in the future. Notwithstanding our adoption of the requirement for cable operators to allow customers to self-install CableCARDS, some cable operators will continue to provide professional installations for those customers who request professional installation and during the time period before the self-installation requirement takes effect.

the record that professional CableCARD installations often require multiple appointments.[96] We believe that requiring cable technicians to have CableCARDs in good working condition on hand when they are requested and allowing subscribers to self-install CableCARDs will decrease the number of required appointments dramatically. To address Time Warner Cable and Verizon's concerns that subscribers may not be properly equipped to self-install a CableCARD,[97] our self-installation rule will apply only where device manufacturers or vendors provide detailed, device-specific instructions on how to install a CableCARD and the manufacturer's or vendor's toll-free telephone number within the packaging of the device and on the manufacturer's or vendor's website.[98] At this time we will not adopt a rule requiring retail installation of CableCARDs; however, since devices will now contain instructions from manufacturers or vendors on self-installation and because such an action will decrease the burden on the cable providers, we encourage[99] cable operators and consumer electronics retailers to reach agreement through continued private negotiations to achieve this type of consumer-friendly retail option.

28. In addition to empowering cable subscribers to install CableCARDs, we will also make it easier for consumers to file complaints relating to cable customer premises equipment (including CableCARDs, tuning adapters, and set-top boxes) with the Commission by adding a specific reference to CableCARDs and other customer premises equipment to the process for filing complaints on our website.[100] If a cable operator chooses to provide satisfactory access to SDV channels for retail devices by means of customer-premises equipment such as a tuning adapter, this process will encompass complaints relating to such equipment as well as complaints relating to CableCARDs. We will strictly enforce our navigation device rules in order to ensure proper support for CableCARD devices. We conclude that this streamlined complaint process makes CEA's suggestion that the Commission provide local franchising authorities with the authority to enforce the CableCARD rules unnecessary, and will allow for more consistent enforcement of our CableCARD rules nationwide. In addition, we will develop new consumer education materials specifically discussing the availability of cable boxes at retail as an alternative to leasing a cable box from the cable operator. Within the next few weeks, these materials will be available on our website and will be provided by our call center to those customers who lack web access.

29. The changes we adopt herein will improve the consumer experience substantially, as cable subscribers will no longer have to schedule multiple installation appointments for CableCARD installations. Furthermore, these rule changes will place only a *de minimis* burden on cable operators, because the device manufacturer's or vendor's self-installation instructions will include the manufacturer's or vendor's toll-free telephone number directing customer questions to the manufacturer or vendor and not to the cable operator. We disagree with Verizon's assertion that the Commission does not have the authority to adopt such a rule, as we believe that this rule falls squarely within our authority under Section 629. The need to schedule multiple installation appointments unquestionably is an

[96] Farley Padron Comments at 1; Brian Charbonneau Comments at 1; Kristopher King Reply at 1; Wes Mills Reply at 1; Letter from Christopher Cupler to Federal Communications Commission at 1-2 (Aug. 14, 2010); Jesus M. Rodriguez Ex Parte filing at 1-2 (July 12, 2010).

[97] Commenters agreed that Moxi and TiVo each provide instructions that would satisfy this requirement. *See* Arris Comments at 3; NCTA Reply at 14. *See also* Arris Inc., Moxi HD DVR Quick Start Guide *available at* http://moxi.com/us/support/MC4R/QuickStartGuide.pdf; TiVo Inc., CableCARD Setup Wizard, http://www.tivo.com/setupandsupport/cablecard-wizard/index.html.

[98] *See* Appendix B at 46 (adopting new Section 76.1205(b)(1)(A)).

[99] *See* NCTA Reply at 14-15.

[100] *See* http://esupport.fcc.gov/complaints.htm?sid=&id=d1e650.

impediment to realizing a competitive retail market for navigation devices, and the record is replete with comments from frustrated consumers who have had to schedule multiple appointments with technicians due to CableCARD installation problems.[101] We believe that Congress's intent in adopting Section 629 was to ensure that cable operators treat retail navigation devices in the same manner that they treat leased navigation devices.[102] Accordingly, we believe that we have clear statutory authority under Section 629 to adopt this self-installation rule.

### 4. Multi-stream CableCARDs

30. A Multi-stream CableCARD is a single CableCARD that is capable of decrypting multiple channels, thereby allowing consumers to record one channel while simultaneously watching another channel. Original CableCARDs were only capable of decrypting a single stream, therefore requiring devices with multiple tuners, such as most digital video recorders, to include two CableCARD slots. With the release of the Multi-stream CableCARD Interface Specification in 2005, device manufacturers obtained the ability to receive up to six program streams though a single CableCARD.[103] Multi-stream CableCARDs, now called M-Cards, can also be used by older devices that had been designed for single-stream CableCARDs. Operators began deploying M-Cards shortly after the adoption of the Multi-stream CableCARD Interface Specification,[104] and today retail devices often require them.[105] In the *FNPRM*, the Commission proposed requiring cable operators to offer M-Cards upon request, to reduce the equipment fees paid by subscribers by enabling them to use only one CableCARD per device rather than two or more.[106]

31. Commenters were generally supportive of the proposed rule, though numerous commenters suggested the Commission require the provisioning of M-Cards by default, rather than on request. TiVo, Public Knowledge, and CEA all explicitly suggested this approach.[107] Arris and Tivo note that all leased set-top boxes include M-Cards, and that newer retail devices require M-Cards to function properly.[108] They further claim that the record demonstrates that retail devices are left to use recycled single-stream cards that may not work, while leased set-top boxes are outfitted with new, functioning M-Cards. NCTA also states they do not object to requiring cable operators to provide an M-Card to any subscriber who requests one, though they assert that certain devices work better with single-stream

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[101] *See, e.g.*, Letter from Tim Petlock to Marlene H. Dortch, Secretary, Federal Communications Commission at 1-2 (Aug. 22, 2010); Farley Padron Comments at 1; Brian Charbonneau Comments at 1; Kristopher King Comments at 1; Wes Mills Comments at 1.

[102] *Cf.* 47 U.S.C. § 549(a) (encouraging the Commission to adopt regulations to assure the commercial availability of navigation devices without prohibiting cable operators from leasing their own devices); S. REP. 104-230, at 181 (1996) (Conf. Rep.) ("One purpose of this section is to help ensure that consumers are not forced to purchase or lease a specific, proprietary converter box, interactive device or other equipment from the cable system or network operator.").

[103] *See Multi-Stream CableCARD Interface, OC-SP-MC-IF-C01-050331,* OpenCable Specifications (Mar. 31, 2005). Available at http://www.cablelabs.com/opencable/downloads/specs/OC-SP-MC-IF-C01-050331.pdf.

[104] Comcast Comments at 24.

[105] Arris Comments at 3, Tivo Comments at 5.

[106] *See FNPRM*, 25 FCC Rcd at 4309-10, ¶ 17.

[107] TiVo Comments at 6, Public Knowledge, et al, Comments at 15, CEA Reply at 3-4.

[108] Arris Comments at 3; TiVo Comments at 5.

CableCARDs, and therefore cable operators should also have the discretion to deploy them to their subscribers.[109]

32. Only Verizon and John Staurulakis, Inc. assert that the Commission should not require cable operators to deploy M-Cards. They assert that such a requirement would be costly and unnecessary because so few subscribers actually use CableCARDs.[110] Verizon further states that the marketplace is already working to increase the availability of M-Cards for those few subscribers.[111] Comcast goes further, stating that M-Cards have been widely used since 2007, and cable operators have sufficient supplies of multi-stream CableCARDs to meet customer demand for them.[112] NCTA also suggests that the Commission adopt the multi-stream CableCARD rules, which would test for compatibility between UDCPs and M-Cards, that NCTA and the CE industry proposed in 2006.[113]

33. We conclude that the best step we can take in this regard to assure the development of a retail market for navigation devices is to require cable operators to provide multi-stream CableCARDs by default, unless a subscriber expressly requests a single-stream CableCARD.[114] All new devices require multi-stream CableCARDs, and multi-stream CableCARDs have been standard equipment since 2007. Therefore, requiring cable operators to provide multi-stream CableCARDs by default will conform more closely to the concept of common reliance, provide improved customer experience, and impose little, if any, costs on the industry, as our examination of the record indicates that CableCARD manufacturers are no longer making single stream CableCARDs to sell to cable operators.[115] We also adopt the multi-stream CableCARD rules that NCTA and the CE industry proposed in 2006, as they are necessary to update our rules to conform with the current state of CableCARD testing procedures.[116]

### 5. CableCARD Device Certification

34. In the *FNPRM*, the Commission proposed a rule change intended to streamline the process of CableCARD device certification. The proposed rule would prohibit CableLabs or other qualified testing facilities from refusing to certify Unidirectional Digital Cable Products for any reason other than a failure to comply with a device conformance checklist referenced in the Commission's rules.[117] The Commission proposed the rule change based on complaints regarding the cost, complexity,

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[109] NCTA Comments at 21, NCTA Reply at 15.

[110] Verizon Comments at 9; JSI Comments at 4.

[111] Verizon Comments at 9.

[112] Comcast Comments at 24; NCTA Comments at 21.

[113] *Id.* at 22 (citing Letter from Judson Cary, Deputy General Counsel, CableLabs, to Marlene H. Dortch, Secretary, Federal Communications Commission (Nov. 13, 2006) (recommending changes to the Commission's rules to reference updated multi-stream CableCARD test suites)).

[114] *See* Appendix B at 46 (adopting new Section 76.1205(b)(2)).

[115] Comcast Comments at 24. Given that single stream CableCARDs are no longer manufactured, we disagree with Verizon and John Staurulakis, Inc.'s arguments that this requirement will impose burdensome costs on cable operators.

[116] *See* Appendix B at 42-44 (amending Sections 15.38(c); 15.123(c)(5)).

[117] *FNPRM*, 25 FCC Rcd at 4310, ¶ 18. The conformance checklists referenced in the Commission's rules ensure that the devices are compatible with CableCARDs and do not circumvent content encoding. *See* 47 C.F.R. § 15.123.

and restrictiveness of device certification.[118] The Commission also committed to "consider any other proposed solution to streamline the CableCARD certification process to facilitate the introduction of retail navigation devices."[119]

35. Comments regarding CableCARD device certification indicate that the proposed rule would simply codify the CableCARD certification process as it exists today.[120] No commenter opposes the proposed rule, although certain commenters argue that the proposed rule would not do enough to protect device manufacturers.[121] In addition, certain commenters argue that the proposed device certification rule is not rigorous enough to assure a competitive device market. Specifically, CEA and Public Knowledge each encourage the Commission to extend the device certification rule to apply to CableCARD-compatible computers and computer peripheral devices and to limit the terms that CableLabs may dictate in licensing agreements.[122] They assert that these steps will allow start-up companies like SageTV to develop their devices, and that the proposed rule will not be effective without this extension. Indeed, NCTA and MPAA acknowledge that the Commission's proposed rule would have no effect on the SageTV certification problems that the Commission highlighted in the *FNPRM*.[123]

36. In a similar vein, IPCO and Nagravision encourage the Commission to streamline the certification process for the CableCARD separated security modules, as the Commission does not have a rule that prescribes a certification process for the CableCARD itself.[124] They assert that CableLabs has delayed certification of competitive separated security modules, which limits the companies' ability to develop affordable whole-system solutions to sell to cable operators. They reason that, if device manufacturers can manufacture and test their own CableCARDs in conjunction with their retail devices, they will be able to develop products more rapidly.

37. We conclude that the best step we can take in this regard to carry out our statutory mandate under Section 629 is to (i) modify our rules to reflect updated testing procedures,[125] and (ii) adopt the proposed rule that prohibits CableLabs or other qualified testing facilities from refusing to certify UDCPs for any reason other than a failure to comply with the conformance checklists referenced

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[118] *Id.* In the *FNPRM*, the Commission cited comments that complained of CableLabs requiring tru2way devices to include a "walled garden" using a separate interface for navigating cable services from the other services that the retail device navigates. *Id.* at n.45. Commenters have also raised other issues related to CableCARD licensing agreements. For example, CEA criticizes the CableCARD Host Interface Licensing Agreement as unnecessarily vague because it "still permits CableLabs to impose new certification requirements whenever it deems them 'critical' to preventing 'harm to the network,' not limited to electronic or physical harm." CEA Comments at 13.

[119] *Id.*

[120] Arris Comments at 2-3; MPAA Comments at 6-7; NCTA Comments at 23-26.

[121] National Cable and Telecommunications Association's Opposition to Petitions for Reconsideration and Notice of Joint Proposal for Improved Testing Rules in CS Docket No. 97-80, Exhibit A, Agreement Concerning Equivalent ATP, March 10, 2004.

[122] CEA Comments at 12-14.

[123] MPAA Comments at 6; NCTA Comments at 23.

[124] IPCO Comments at 6-8; Nagravision Comments at 2.

[125] *See* Appendix B at 42-44 (amending Section 15.123(c)); NCTA Comments at 25-6 (citing National Cable and Telecommunications Association's Opposition to Petitions for Reconsideration and Notice of Joint Proposal for Improved Testing Rules in CS Docket No. 97-80, Exhibit A, Agreement Concerning Equivalent ATP, March 10, 2004).

in our current rules.[126] These rule changes should encourage navigation device manufacturers to build competitive devices by eliminating unnecessary delays and costs associated with device testing, while continuing to recognize the importance of protecting cable networks and service. Based on the comments we have received about the certification process, we believe that these rule changes do little more than codify the certification process as it exists today.[127] Comments reflect that while the certification process is costly, CableLabs's device testing is conducted in a professional manner and is important to ensure that CableCARD devices work properly.[128] CEA claims generally, however, that certain CableCARD licensing terms may go beyond what is allowed under Sections 76.1201 and 76.1204 of our rules.[129] They assert that these licensing terms limit innovation.[130] To the extent that any interested party has concerns that an aspect of the CableCard licensing regime violates Sections 76.1201 through 76.1204 of the Commission's rules,[131] that party may allege a specific violation of the Commission's rules pursuant to Section 76.7 of our rules.[132]

38. We decline to adopt IPCO and Nagravision's proposal to extend certification rules to the CableCARD security modules by dictating the specific testing procedures that CableLabs must use to certify CableCARD security modules. CableCARDs are an important part of protecting signal theft and protecting cable networks. Section 629(b) prohibits the Commission from adopting regulations that would jeopardize the security of cable systems or interfere with a cable operator's right to prevent theft of service.[133] Therefore, we believe that it would be prudent to defer to CableLabs's policies on certifying whether the CableCARDs themselves, which are the lynchpins of the conditional access scheme, are robust enough to protect cable systems and prevent theft of service.

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[126] *See* Appendix B at 42-44 (amending Section 15.123(c)).

[127] MPAA Comments at 6; NCTA Comments at 23.

[128] Letter from Gary Hammer, President and CEO, Ceton Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission at 2 (April 8, 2010) ("CableLabs goes to extremes to be impartial and Ceton has always felt on an equal footing with larger more established hardware manufacturers with regards to access to information, test procedures and equipment, and resolution of specification questions and issues. CableLabs' policies and procedures for changes to specifications are well established and fair; balancing manufacturer and consumer interests with cable provider network operational and security constraints."); Arris Comments at 2-3 ("We have found the certification processes to be fair and reasonable, and CableLabs staff to be professional.").

[129] CEA Comments at 12-14.

[130] *Id.*

[131] 47 C.F.R. §§ 76.1201-76.1204.

[132] 47 C.F.R. § 76.7; *see Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 15 FCC Rcd 18199, 18211, ¶ 29, n.71 ("Parties may present such concerns pursuant to Section 76.7 of the Commission's rules, 47 C.F.R. § 76.7. The Commission will review only those terms of DFAST licenses that a complainant alleges violate a specific navigation devices rule."); 47 C.F.R. §§ 76.1201-76.1204; *See also Plug and Play Order*, 18 FCC Rcd at 20918-20, ¶¶ 76-79; *cf. Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 15 FCC Rcd 18199, 18212, ¶¶ 27-28, 31 (2000) ("Anecdotal evidence supplied to the Commission suggests that at least some content providers require the same level of copy protection, or will require the same level of copy protection upon the termination of existing licenses, with regard to MSO-provided devices as they do commercially available devices. Should additional evidence indicate that content providers are requiring disparate measures of copy protection from different industry segments, the Commission will take appropriate action.").

[133] 47 U.S.C. § 549(b); *see also* 47 C.F.R. §§ 76.1201, 76.1202.

## B. Interface Requirements

39. The Commission's rules require cable operators to include an IEEE 1394 interface on all high-definition set-top boxes that they acquire for distribution to customers.[134] IEEE 1394, also known as Firewire, is an external serial data connection that allows for audio and video data transfers.[135] The Commission adopted a requirement from the MOU to provide an IEEE 1394 interface on all high-definition set-top boxes as a means of enabling a market for devices which interact with the operator-supplied set-top box.[136] In the *FNPRM*, the Commission proposed to give cable operators greater flexibility in deciding which type of interface to include on the set-top boxes that they lease. Set-top box manufacturers and cable operators suggested that alternative interfaces could perform the same functions and have wider consumer adoption than the IEEE 1394 interface.[137] The Commission also proposed to clarify that operators must enable bi-directional communication over these interfaces. The proposed clarification would require the interfaces to be able to receive remote-control commands from a connected device and deliver video in any industry-standard format to ensure that video made available over these interfaces can be received and displayed by devices manufactured by unaffiliated manufacturers (*i.e.*, manufacturers not owned by or under license of the leased set-top box vendor or cable operator) and sold at retail.[138] The record generally supported replacing the IEEE-1394 interface requirement with a rule that would instead require cable operators to include an IP-based connection on all high-definition set-top boxes that they acquire for distribution to customers.[139] The commenters also agreed that the Commission does not need to define the physical interface (e.g., IEEE 1394, Ethernet, Wi-Fi, or MoCA) used to transfer the IP data. With respect to functionality, commenters disagreed on whether the Commission should set a baseline for functionality of that interface.

40. Certain commenters suggested that the Commission should adopt baseline standards to define a "functional" IP connection on a set-top box. Various industry associations have developed suites of standards that include functionality we might rely on. For example, Panasonic suggested that the Commission require that the IP connection pass through "OpenCable Host Thin Chassis Device" remote commands. OpenCable, branded for consumers as tru2way, was developed by CableLabs, is a set of standards defining a common interface for supporting interactive cable services. As the full implementation, branded for consumers as tru2way, has seen limited adoption in retail devices, the Host Thin Chassis Device standard was developed to provide reduced costs while simultaneously enabling two-way communication with CableCARDs. Among the component parts of the Host Thin Chassis

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[134] 47 C.F.R. § 76.640(b)(4)(ii). On June 18, 2010, the Media Bureau granted a waiver of this rule for all set-top boxes that include an IP-based interface pending the outcome of this rulemaking. *Intel Corporation, Motorola, Inc., and TiVo, Inc Requests for Waiver of Section 76.640(b)(4)(ii) of the Commission's Rules*, DA 10-1094 (MB rel. June 18, 2010).

[135] *See* 1394 Trade Association, What Is Firewire?, http://www.1394ta.org/consumers/WhatIsFireWire.html (last visited Sept. 16, 2010).

[136] *Plug and Play Order*, 18 FCC Rcd at 20896-7, ¶ 12.

[137] *FNPRM*, 25 FCC Rcd at 4311, ¶ 19-20.

[138] *Id.* at 4311, ¶ 21

[139] CEA Comments at 19-22; NCTA Comments at 26-36. Public Knowledge suggested that the connection must be robust enough to handle a high definition stream. Public Knowledge Comments at 17. IEEE-1394 is capable of carrying IP data, so cable operators could deploy devices with IEEE-1394 outputs, but the modified rule would allow them to deploy devices with Ethernet, Wi-Fi, MoCA or any other IP-based physical interface to fulfill the interface requirement.

Device standard are specifications for passing remote control commands entered with the TV remote control through to the set-top box.[140]

41. CEA and the Digital Living Network Alliance ("DLNA") each suggest that the Commission require that devices follow the DLNA guidelines.[141] DLNA standards have been or are being developed to enable widespread network-based connectivity for a wide variety of devices, from handheld viewers to media servers. This focus on broad interoperability has resulted in standards which permit the addition or subtraction of various functional components, including remote control commands and content formats.[142] Three consumers suggested that the Commission require that the interfaces pass through closed captioning data.[143] The 1394 Trade Association and Texas Instruments commented that each leased set-top box should be required to play back any video that is sent to it over an IEEE 1394 interface.[144]

42. Comcast, Verizon, and NCTA each argue that defining "functional" would put a large burden on cable operators. They assert that standards organizations are still working to define standards for functionality over IP-based connections, and that cable operators could not comply with a functionality requirement in the near future.[145] They assure the Commission that the market will determine the specific type of functionality that consumers desire, and therefore urge the Commission not to lock operators into a certain defined set of functions, lest the Commission make the same mistakes it made with regard to the IEEE 1394 interface requirement.

43. We conclude that the best step we can take in this regard to fulfill our statutory mandate under Section 629 is to modify our interface rule to require cable operators to include an IP-based interface on all two-way high-definition set-top boxes that they acquire for distribution to customers without specifying a physical interface.[146] IP has overwhelming marketplace support and serves the same purpose that our IEEE 1394 connection requirement was intended to serve.[147] We agree with commenters that the method of physical transport (e.g., Ethernet, Wi-Fi, MoCA, or IP implemented over IEEE 1394) is not relevant in this situation, as we predict based on our examination of the record in this proceeding

[140] *See* OpenCable Host Thin Chassis Device Core Functional Requirements, OC-SP-HOSTTC-CFR-I01-100122, CableLabs Specification *available at* http://www.cablelabs.com/specifications/OC-SP-HOSTTC-CFR-I01-100122.pdf.

[141] CEA Comments at 19-22; DLNA Comments at 3-5. CEA also urges the Commission to require MPEG-2 and MPEG-4/h.264 encoding for the video. CEA Comments at 22.

[142] *See* Digital Living Network Alliance, DLNA Guidelines, Vol. 1-2 (2009).

[143] Goldberg Comments at 1; Laflin Comments at 1; Vickery Comments at 1.

[144] 1394 TA Comments at 3, Texas Instruments Comments at 5.

[145] Comcast Reply at 2-3.

[146] *See* Appendix B at 45 (amending Section 76.640(b)(4)(ii)).

[147] *See* Accenture, Consumer Electronics Products and Services Usage Report, *available at* http://www.accenture.com/NR/rdonlyres/040BE0BE-1FE5-45DD-9791-AC1D40A45A2C/0/Accenture_211008_DL_Survey_09_Media_Deck_V09.pdf; Parks Associates, "Connected Consumer Electronics: Linking Premium Applications and Content Across Devices," presentation to Connections Summit June 2009, *available at* http://www.parksassociates.com/events/connections/summit/2009/agenda/slides/Summit09-ConnectedCE.pdf; DLNA Overview and Vision Whitepaper (2007) at 2, available at http://www.dlna.org/news/DLNA_white_paper.pdf).

that consumers will use network adapters to choose the physical transport method that they prefer for networking their devices, in furtherance of the goals of Section 629.

44. Contrary to Comcast, Verizon and NCTA's assertions, we believe that it is important to define a baseline of functionality to ensure that consumers who network their devices and device manufacturers can rely on networked devices' ability to communicate with leased set-top boxes. However, as with the physical interface itself, we find that it is appropriate, at this time, to refrain from specifying the exact manner in which this baseline of functionality is to be implemented. Accordingly, we modify our rules to require that the IP-based connection deliver the video in a recordable format (*e.g.*, MPEG-2, MPEG-4, h.264), and pass through closed captioning data in a standard format.[148] We also believe more advanced functionalities are necessary to provide a foundation for a retail market of navigation devices that are connected to leased set-top boxes with limited capabilities.[149] Those functionalities include service discovery, video transport, and remote control command pass-through standards for home networking. While these functionalities may exist in some form today,[150] there is considerable work ongoing in industry standard bodies to provide those functionalities in a manner designed for IP-based and home network solutions. We, therefore, do not mandate that these additional functionalities be supported by cable operators immediately. We do, however, wish to ensure that consumers benefit from these additional functionalities in a timely manner, and require operators to provide these additional functionalities by December 1, 2012, but do not mandate a particular means by which these functionalities are to be provided.[151]

### C. Promoting Cable's Digital Transition

45. The integration ban, which went into effect in 2007, is designed to support the market for retail navigation devices by creating an incentive for cable operators to fully support CableCARDs, drive costs down through economies of scale, and encourage cable operators to strive to improve and maintain the CableCARD system.[152] In the *FNPRM*, the Commission proposed to allow operators to place into

[148] The President recently signed the Equal Access to 21st Century Communications Act, which reinstates the Commission's Video Description rules and extends the Commission's authority to adopt closed captioning rules. We encourage interested parties to familiarize themselves with that Act and implementing rulemakings, as they may have an effect on functionality requirements of this IP-based connection. Equal Access to 21st Century Communications Act, S. 3304, S.3828, 111th Cong. (2010).

[150] *See e.g.*, Remote Control Command Pass-through Standard for Home Networking, CEA-931-C, Consumer Electronics Association (2007).

[151] While we believe this additional time is more than sufficient to complete any necessary standard-setting work, and address implementation, testing and deployment issues, we recognize that standard setting procedures can be complex and resource intensive. Should the Commission's predictions with respect to finalization of appropriate standards prove inaccurate, we would entertain reasonable requests for extensions as long as cable operators demonstrate good faith efforts to work towards these functionalities.

[152] *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 20 FCC Rcd 6794, 6794, ¶ 2 (2005) ("[C]ommon reliance by cable operators on the same security technology ... that consumer electronics manufacturers must employ in developing competitive navigation devices will help attain the goals of Section 629 of the [Telecommunications] Act."). *See also First Report and Order*, 13 FCC Rcd at 14803. (first extended by *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 18 FCC Rcd 7924, 7926, ¶ 4 (2003); later extended by *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 20 FCC Rcd 6794, 6810, ¶ 31 (2005)). *See Evolution Broadband, LLC Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, 24 FCC Rcd 7890, 7891, ¶ 3 (2009).

service new one-way navigation devices (including devices capable of processing a high-definition signal) that perform both conditional access and other functions in a single integrated device provided that the devices do not perform recording functions. The integration ban raises the cost of set-top boxes for cable operators, which discourages operators from transitioning their systems to all-digital.[153] Transitioning to an all-digital cable system allows operators to make more efficient use of spectrum capacity, allowing the operators to dedicate more of their spectrum to broadband and other services. The impetus for this proposed rule change was to remove economic barriers that discourage cable operators from transitioning their systems to all-digital.

46. The rule proposed in the *FNPRM* would still require operators to offer CableCARDs to any subscribers who request them and to commonly rely on CableCARDs for any digital video recorder and bidirectional devices that they offer for lease or sale. In limiting the proposed rule's applicability to devices with less functionality, the Commission attempted to balance the goal of easing the financial burdens associated with transitioning to digital cable systems with the benefits that stem from common reliance.[154] The Commission also sought comment on whether the potential effect on the retail market supports limiting any relief to smaller cable systems with activated capacity of 552 MHz or less. Some commenters additionally suggested that the integration ban should be eliminated entirely.

47. *Exempting Limited Capability High Definition Set-Top Boxes.* NCTA, ACA, Comcast, and Time Warner support the proposed rule and suggest that it will not impact the limited retail market for navigation devices that currently exists.[155] Motorola adds that HD capability is commonplace rather than advanced and, therefore, the proposed rule would have no effect on the retail market for navigation devices, as the competitive devices available at retail have advanced functionality such as Internet connectivity and recording capability.[156] Finally, proponents of the rule change assert that it will allow cable operators to deploy less expensive set-top boxes which will ease consumers' financial burden when cable operators transition to digital systems.[157] BBT suggests that, for the sake of regulatory certainty, the Commission should not take a piecemeal approach in applying the integration ban suggesting that the Commission either abandon the integration ban altogether or not at all.[158]

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[153] *See, e.g., Bend Cable Communications, LLC d/b/a BendBroadband Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules; Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 22 FCC Rcd 209, 216-218, ¶¶ 21-25 (2007).

[154] *See Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, 20 FCC Rcd at 6809, ¶ 30 ("We believe that common reliance by MVPDs and consumer electronic manufacturers on an identical security function will align MVPDs' incentives with those of other industry participants so that MVPDs will plan the development of their services and technical standards to incorporate devices that can be independently manufactured, sold, and improved upon. Moreover, if MVPDs must take steps to support their own compliant equipment, it seems far more likely that they will continue to support and take into account the need to support services that will work with independently supplied and purchased equipment. We believe that cable operator reliance on the same security technology and conditional access interface that consumer electronics manufacturers must rely on is necessary to facilitate innovation in competitive navigation device products and should not substantially impair innovation in cable operator-supplied products.")

[155] NCTA Comments at 14, ACA Comments at 6; Comcast Comments at 14-16; Comcast Reply at 7-9; Time Warner Cable Comments at 16-17.

[156] Motorola Comments at 14-15.

[157] ACA Comments at 3; BendBroadband Reply at 3-4; JSI Comments at 5-7; NCTA Comments at 7-9; Sweetwater Comments at 2-3; Zito Comments at 2, 7.

[158] BBT Comments at 18-19; BBT Reply at 2-4.

48. Public Knowledge and CEA argue that the proposed rule would undermine the goals of common reliance. They assert that the proposed rule would limit cable operators' incentives to support CableCARDs, and that the current state of CableCARD support suggests that cable operators need more, not fewer, incentives to support CableCARDs.[159] They assert also that the Commission still does not have reliable data regarding the cost of relying on CableCARDs or the economic effect CableCARD exemptions have on the retail market. CEA and Public Knowledge argue that, without such data, the Commission cannot accurately balance the public interest benefits of the integration ban against the benefit of an exemption.[160]

49. Based on our examination of the record, we will adopt the limited exemption to the integration ban proposed in the *FNPRM*. As the Commission explained in 2005, common reliance ensures that cable operators have incentives to make their services as accessible as possible to CableCARD devices.[161] We find that even if cable operators are allowed to deploy integrated one-way devices they will still have incentives to ensure that CableCARD devices are able to receive their services because all two-way, digital video recorder ("DVR") and Internet-connected devices deployed by cable operators will still be subject to the integration ban. Furthermore, as NCTA highlights, cable operators have deployed more than 40 times as many CableCARDs in their own separated security devices than in devices purchased at retail, and we believe that the former devices will remain in service for years to come.[162] We conclude that this decision will not undermine the goal of common reliance, as we believe that the majority of operator-leased devices will continue to commonly rely on CableCARDs, and therefore cable operators will continue to have adequate incentives to support CableCARDs in retail devices. Allowing operators to deploy one-way devices with integrated security will help lower the costs of set-top box rentals to subscribers and allow operators to dedicate more of their spectrum to broadband without undermining the effectiveness of the integration ban. In this vein, while we recognize that the inclusion of an IP-based home-networking connection would provide additional functionality, we believe that the costs to consumers of imposing the interface requirement would outweigh the potential benefits. For these reasons, we exempt one-way set-top boxes from the Commission's integration ban and, correspondingly, our interface requirements.[163]

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[159] Public Knowledge Comments at 20-22; CEA Reply at 14-17.

[160] *Id.*

[161] *See supra* note 154.

[162] *See, e.g.*, Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission at Attachment at 2 (Sept. 7, 2010). In comparison, in the privately negotiated tru2way agreement consumer electronics manufacturers were satisfied with common reliance on tru2way in 20 percent of new set-top boxes, and agreed to terminate the requirement once the cable industry has deployed a total of ten million tru2way compliant set-top boxes. *See* Letter from Joel Wiginton, Vice President and Senior Counsel, Sony Electronics Inc., and Kathryn A. Zachem, Vice President, Regulatory Affairs, Comcast Corporation to Monica Desai, Chief, Media Bureau, Federal Communications Commission at Attachment at 1 (June 10, 2008).

[163] *See* Appendix B at 45 (amending Sections 76.640(b)(4) and 76.1204(a)(2)). In May, 2009, the Commission adopted a Memorandum Opinion & Order that imposed certain reporting requirements on Cable One, Inc. as a condition of its waiver of the integration ban with respect to one-way, non-DVR devices that are capable of processing a high-definition signal. *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Cable One, Inc.'s Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, 24 FCC Rcd 7882, 7887-8, ¶ 15 (2009). As those devices are no longer subject to the integration ban and interface requirements, Cable One, Inc. no longer needs a waiver of Sections 76.640(b)(4) 76.1204(a)(1), and therefore is no longer subject to the reporting requirements that were a condition of that waiver.

50. *Limiting the Proposed Exemption to Small Systems.* We decline to put any limitation on the size or capacity of the systems to which the modified rule applies. While no commenter supports adopting an exemption limited to small cable operators as its preferred course of action, Public Knowledge, which encourages the Commission not to adopt any exemption to the integration ban, alternatively suggests that the Commission limit the rule's applicability to small cable systems.[164] Public Knowledge reasons that such a limitation would mitigate the detrimental effects that such a rule would have on common reliance and the development of a retail market for navigation devices. Cable operators oppose such a limitation and assert that limiting the relief would be akin to not offering relief at all. They argue that economies of scale are necessary to encourage manufacturers to develop inexpensive devices with integrated security.[165] They argue that small system operators will not be able to achieve the economies of scale that are necessary to make this relief effective.[166] They also assert that limiting the relief to small systems could unfairly harm subscribers who happen to live in areas with large systems because consumers would benefit if large systems were to transition to all-digital as well.[167] For the same reasons that these commenters present, we agree that a small-system limitation would undermine the benefits of the rule change.

51. *Ending the Integration Ban.* We disagree with the arguments of NCTA and cable operators that the Commission should abandon the integration ban altogether.[168] They assert that the integration ban is an expensive, discriminatory requirement with no consumer benefit.[169] Cable operators reason that ending the integration ban would decrease the costs of transitioning to all-digital systems and would lead to increased availability of broadband. Finally, they argue that terminating the integration ban would reduce set-top box costs for all subscribers.[170] In addition to the arguments summarized above, opponents of ending the integration ban assert that it would discourage cable operators from negotiating in good faith in developing a successor technology to CableCARD, as cable operators would have no economic incentive to work to develop such a technology in a timely fashion.[171] We agree. The integration ban continues to serve several important purposes - better support for CableCARD devices, economies of scale for CableCARDs, and economic incentives to develop better solutions. Ending the integration ban before a successor standard is developed would undermine the market for retail navigation devices.

### D. Two-Way Negotiation Reporting

52. As the Commission discussed in the *FNPRM*,[172] in 2005 the Commission adopted a requirement that NCTA and CEA file reports every 60 days regarding the status of negotiations on a

[164] Public Knowledge Comments at 22.

[165] ACA Comments at 6, 10; BendBroadband Reply at 3, Cable One Comments at 10; Cable One Reply at 3; Motorola Comments at 14, 16-17; NCTA Comments at 7-14; Pace Comments at 4-5.

[166] ACA Comments at 10; Charter Comments at 9; Cisco Comments at 22; Motorola Comments at 17; NCTA Comments at 12-13.

[167] Charter Comments at 8-9; Echostar Comments at 12-13; NCTA Comments at 7-14; Ubee Comments at 5.

[168] *See, e.g.*, NCTA Comments at 14, 49-50.

[169] *Id*; BendBroadband Reply at 3-4; Sweetwater Comments at 2-3.

[170] ACA Comments at 3-6, Cable One Comments at 4-10; Cable One Reply at 1-2; NCTA Comments at 49-50.

[171] CEA Reply at 14-17; Panasonic Comments at 5; Public Knowledge Comments at 20-22.

[172] 25 FCC Rcd at 4307, ¶ 12.